APPENDIX I

BIOLOGICAL ASSESSMENT
FOR THE WEST ROUNDUP LBA TRACT
SOUTH POWDER RIVER BASIN COAL EIS

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I-1.0 INTRODUCTION

In 2000, operators of four coal mines in Campbell and Converse Counties, Wyoming applied to lease five tracts of federal coal as maintenance leases under the Leasing on Application regulations at 43 CFR 3425. The environmental impacts of leasing these five Lease by Application (LBA) tracts are being evaluated in one environmental impact statement (EIS), the South Powder River Basin (SPRB) Coal EIS. The five tracts, which are shown in Figure I-1, and applicant mines are:

- NARO North LBA Tract adjacent to and north of the North Antelope/Rochelle Complex;
- NARO South LBA Tract adjacent to and south of the North Antelope/Rochelle Complex;
- Little Thunder LBA Tract adjacent to and west of the Black Thunder Mine;
- West Roundup LBA Tract adjacent to and southwest of the North Rochelle Mine; and
- West Antelope LBA Tract adjacent to and west of the Antelope Mine.

The purpose of this Biological Assessment is to provide information about the potential environmental effects that leasing one of these tracts, the West Roundup LBA Tract, would have on federally Endangered, Threatened, Proposed, and Candidate Species.

Threatened and endangered (T&E) species are managed under the authority of the Endangered Species Act (ESA) of 1973 (PL 93-205, as amended). The ESA requires Federal agencies to ensure that all actions which they authorize, fund, or carry out are not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of their critical habitat.

This Biological Assessment was prepared to display the possible effects to endangered, threatened, proposed, or candidate wildlife or vegetative species (terrestrial and aquatic) known to occur, or that may occur within the area influenced by the Proposed Action and Action Alternatives of the Bureau of Land Management (BLM) and the U.S. Department of Agriculture-Forest Service (USDA-FS). It was prepared in accordance with Section 7 of the ESA.

Biological Assessment objectives are:

1. To comply with the requirements of the ESA that actions of Federal agencies not jeopardize or adversely modify critical habitat of Federally listed species.

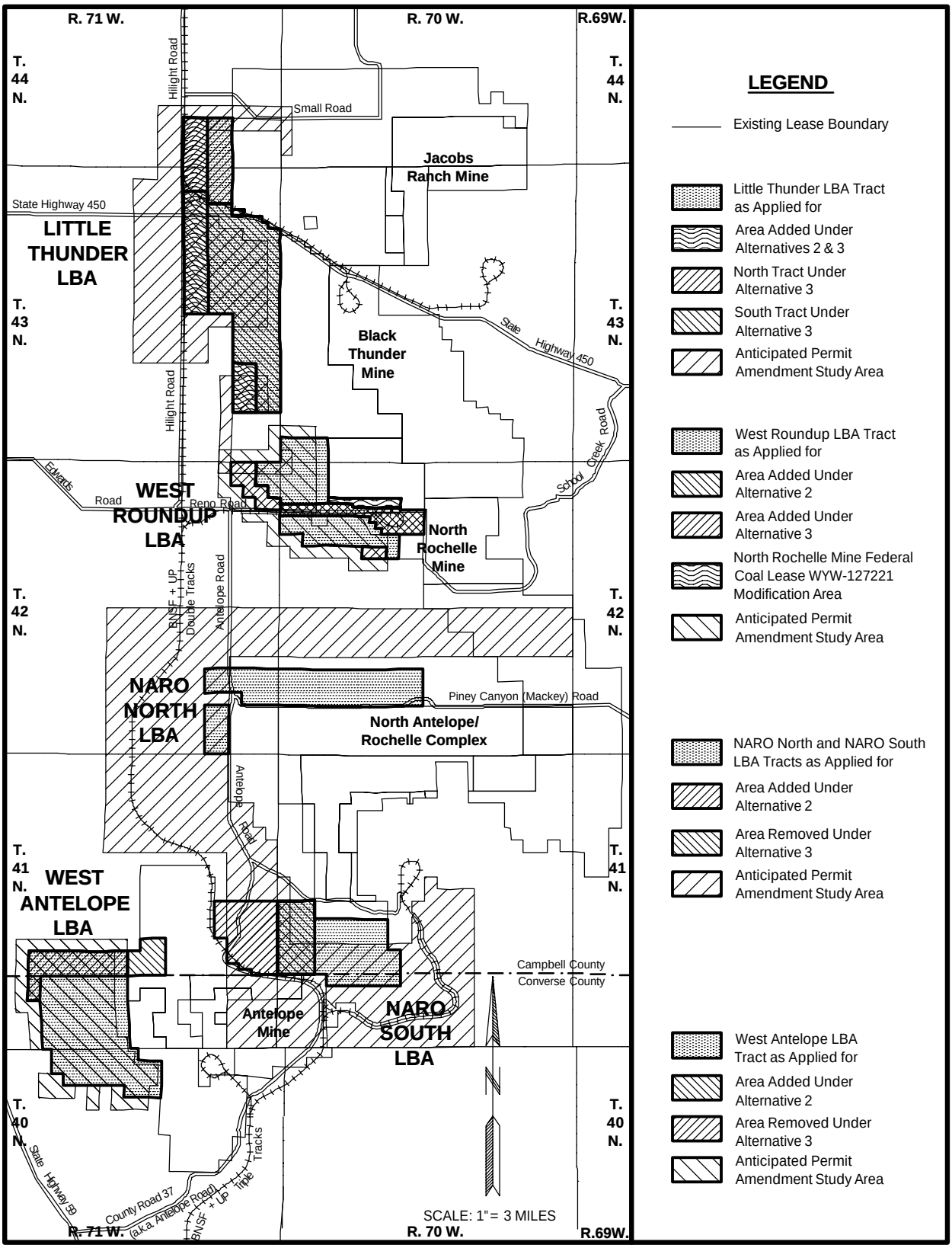

Figure I-1. General Analysis Area for the SPRB Coal EIS.

2. To provide a process and standard by which to ensure that threatened, endangered, and proposed species receive full consideration in the decision making process.

I-2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

I-2.1 The Proposed Action

On July 28, 2000, Triton Coal Company (TCC) filed an application with the BLM for federal coal reserves in a tract located west of and immediately adjacent to the North Rochelle Mine. Under the Proposed Action for the West Roundup LBA Tract, the tract as applied for by TCC would be offered for lease at a separate, sealed-bid, competitive lease sale. The boundaries of the tract would be consistent with the tract configuration proposed in the West Roundup LBA Tract lease application. As shown in Figure I-2a, the West Roundup LBA Tract as applied for consists of two tracts separated by the North Rochelle Mine railroad spur and facilities and a county road (Reno Road). The Proposed Action assumes that the applicant will be the successful bidder on the West Roundup LBA Tract if it is offered for sale.

The legal description of the proposed West Roundup LBA Tract as applied for by TCC under the Proposed Action is as follows:

T.42N., R.70W., 6th P.M., Campbell County, Wyoming

	Acres
Section 6: Lots 8 through 19, 20 (N½), 21 (N½), 22 (N½), and 23 (N½);	539.28
Section 7: Lots 5 (S½), 6 (S½), 7 (S½), 8 (S½), 9 through 14;	303.15
Section 8: Lots 1 (SW¼), 2 (S½), 3 (S½), 4 (S½), 5 through 12;	384.09
Section 9: Lots 5 (SW¼), 11, 12, and 14;	130.39

T.43N., R.70W., 6th P.M., Campbell County, Wyoming

	Acres
Section 31: Lots 13 through 20;	314.23

T.42N., R.71W., 6th P.M., Campbell County, Wyoming

	Acres
Section 1: Lots 5, 6, and 11 through 13;	199.51

Total Acreage: 1,870.65

The coal estate underlying this tract is owned by the federal government and administered by the BLM. The surface estate on this tract is privately and federally owned. The federal surface estate is administered by the USDA-FS as part of the Thunder Basin National Grassland (TBNG).

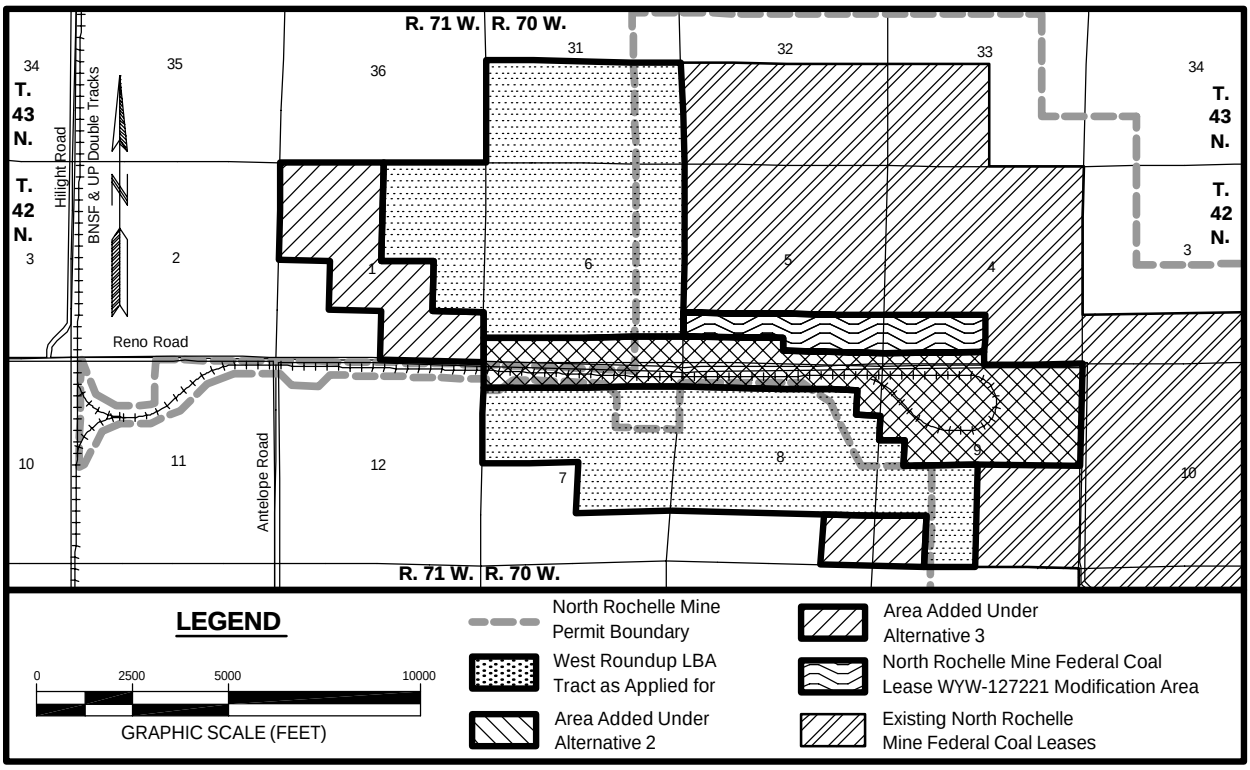

Figure I-2a. West Roundup LBA Alternative Tract Configurations.

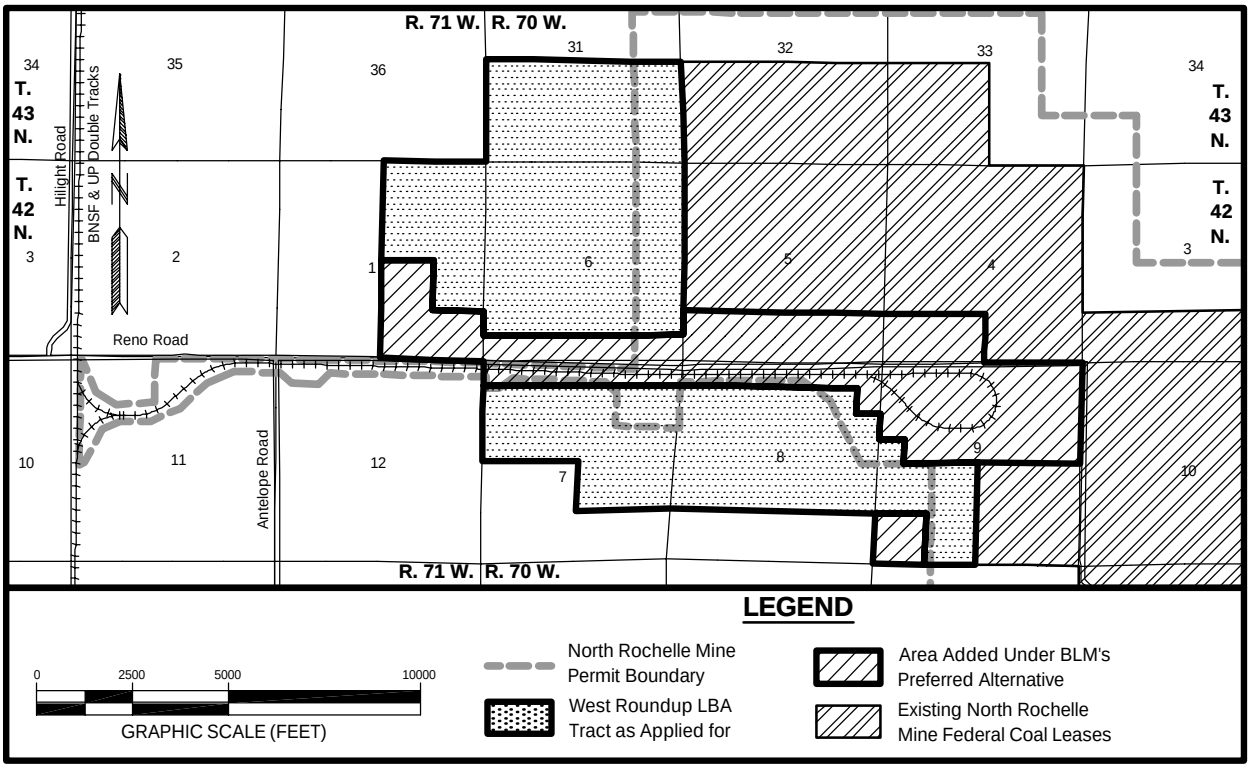

Figure I-2b. West Roundup LBA Preferred Alternative Tract Configuration.

The coal mining unsuitability criteria listed in the federal coal management regulations (43 CFR 3461) have been applied to high to moderate coal development potential lands in the Wyoming Powder River Basin (PRB) (see Section I-3.0 for further discussion). No lands in the West Roundup LBA Tract as applied for were found to be unsuitable for mining. The tract as applied for includes approximately 1,870.65 mineable acres. It is assumed that an area larger than the LBA tract would have to be disturbed in order to recover all of the coal in the tract. The disturbances outside the coal removal area would be due to activities like overstripping, matching undisturbed topography, and construction of flood control and sediment control structures.

Under the Proposed Action for the West Roundup LBA Tract, if a decision is made to hold a competitive lease sale and there is a successful bidder at that sale, a lease would be issued for the tract of federal coal as applied for. Each tract offered for lease would be subject to standard and special lease stipulations developed for the Wyoming PRB. The stipulations that would be attached to each tract are listed in Appendix D of this EIS.

Under the Proposed Action, it is assumed that the LBA tract would be developed as a maintenance lease to extend the life of the adjacent existing North Rochelle Mine. As a result, under the Proposed Action, existing facilities, roads, and employees would be used to mine the coal included in the tract.

BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered at the leasing stage because it is a logical consequence of issuing a lease.

The West Roundup LBA Tract is adjacent to the North Rochelle Mine, but it is also located adjacent to the Black Thunder Mine, operated by TBCC. Arch Coal, Inc., the parent company of TBCC, recently made a successful offer to purchase the North Rochelle Mine. The sale has not yet been completed. Arch Coal has not yet identified how the mining operations at the Black Thunder and North Rochelle Mines will be conducted, but the proposed rate of coal production, the mining sequence, and the mining equipment could change as a result of the merger of the two operations. However, the area of disturbance and the impacts of removing the coal would not be substantially different from the area of disturbance and the impacts of mining if the Black Thunder and North Rochelle operations did not merge.

I-2.2 Alternatives to the Proposed Action

I-2.2.1 Alternative 1

Under the West Roundup LBA Tract Alternative 1, the No Action Alternative, the application to lease the coal included in the West Roundup LBA Tract would be rejected, the tract would not be offered for competitive sale, and the coal included in the tract would not be mined. This would not affect permitted

mining activities and employment on the existing leases at the North Rochelle Mine and would not preclude an application to lease the coal included in the West Roundup LBA Tract in the future. Portions of the surface of the West Roundup LBA Tract could be disturbed due to overstripping to allow coal to be removed from the adjacent existing leases.

I-2.2.2 Alternative 2

Under Alternative 2 for the West Roundup LBA Tract, BLM is considering reconfiguring the tract and holding a competitive coal sale for the lands included in the reconfigured tract. As applied for, the West Roundup LBA Tract consists of two non-contiguous tracts of federal coal separated by the North Rochelle Mine railroad spur, the North Rochelle Mine facilities, and a county road known as Reno Road. Under Alternative 2 for the West Roundup LBA Tract, the size of the tract as applied for would be increased to include the area between the two tracts as applied for (Figure I-2a). BLM is considering including this coal to decrease the potential that some or all of the federal coal in this area would be bypassed.

The area that would be added under this alternative is included in a USDA-FS special use permit for ancillary facilities at the North Rochelle Mine. USDA-FS has determined that the lands under the special use permit are unsuitable for mining under Unsuitability Criterion 2. Although it would not be economically feasible to move the railroad spur, county road, and mine facilities to recover the underlying coal at this time, BLM is considering including this area in the tract because it may be possible to recover portions of the coal reserves in this area when the rest of the tract is mined if it is leased at this time. It may also be economically feasible at some point in the future to move the road and railroad spur and recover the coal if it is leased.

On February 9, 2001, TCC filed an application to modify an existing federal coal lease (WYW-127221) at the North Rochelle Mine by adding 155.90 acres that lie between the existing lease and the North Rochelle railroad loop. BLM processed that lease modification application and the modification area, shown in Figure I-2a, was offered for sale to TCC. TCC rejected BLM's offer and made a counter offer, which BLM rejected. As a result, federal coal lease WYW-127221 was not modified as proposed, and BLM is adding the lands included in the proposed lease modification to the West Roundup LBA Tract under Alternative 2, to avoid bypassing potentially recoverable coal reserves.

The lands that BLM is considering adding to the tract are:

T.42N., R.70W., 6th P.M., Campbell County, Wyoming

	Acres
Section 4: Lots 17 and 18;	78.11
Section 5: Lots 17 through 20;	155.64
Section 6: Lots 20 (S½), 21 (S½), 22 (S½), and 23 (S½);	77.35

Section 7: Lots 5 (N½), 6 (N½), 7 (N½), and 8 (N½);	77.18
Section 8: Lots 1 (N½, SE¼), 2 (N½), 3 (N½), and 4 (N½);	87.86
Section 9: Lots 1 through 4, 5 (N½ SE¼), 6 through 8;	305.89
Total Acreage:	782.04

The Alternative 2 reconfiguration of the West Roundup LBA Tract, therefore, results in a tract comprising approximately 2,652.69 acres containing approximately 257 million tons of in-place coal. Using TCC's projected recovery factor of 90 percent, the reconfigured tract would contain about 231.3 million tons of recoverable coal, assuming that the coal underlying the railroad spur and facilities would be economically recoverable at some point in the future.

I-2.2.3 Alternative 3

Under Alternative 3 for the West Roundup LBA Tract, the size of the tract as applied for would be increased. The area between the two tracts as applied for, which is included in the USDA-FS special use permit, would be added as under Alternative 2 (see discussion under Alternative 2). In evaluating the West Roundup coal lease application, the BLM identified a study area, shown in Figure I-2a as "the area added under Alternative 3", that included unleased federal coal adjacent to the tract as applied for that BLM is considering adding to the tract to potentially maintain or increase the potential for competitive interest in the remaining unleased federal coal in this area. This study area includes approximately 1,179.28 acres containing an estimated 150 million tons of in-place coal. The BLM's Preferred Alternative for the West Roundup LBA Tract, which is shown in Figure I-2b, is to add the area included in Alternative 2 and a portion of the Alternative 3 study area to the tract as applied for.

The legal description of the West Roundup LBA Tract under the BLM's Preferred Alternative is as follows:

T.42N., R.70W., 6th P.M., Campbell County, Wyoming

	Acres
Section 4: Lots 17 and 18;	78.11
Section 5: Lots 17 through 20;	155.64
Section 6: Lots 8 through 23;	616.62
Section 7: Lots 5 through 14;	380.33
Section 8: Lots 1 through 12;	471.94
Section 9: Lots 1 through 8 and 11 through 14;	476.46

T.42N., R.71W., 6th P.M., Campbell County, Wyoming

	Acres
Section 1: Lots 5, 6, 11 through 14, 19, and 20;	319.18

T.43N., R.70W., 6th P.M., Campbell County, Wyoming

	Acres
Section 31: Lots 13 through 20;	314.23
Total Acreage:	2,812.51

The Preferred Alternative reconfiguration of the West Roundup LBA Tract, therefore, results in a tract comprising approximately 2,812.51 acres containing approximately 319.4 million tons of in-place coal. Using TCC's projected recovery factor of 90 percent, the reconfigured tract would contain about 287.5 million tons of recoverable coal, assuming that the coal underlying the railroad spur and facilities would be economically recoverable at some point in the future.

As under the Proposed Action, if Alternative 2 or Alternative 3 is selected BLM would hold a competitive coal sale and issue a lease to the successful bidder. The modified tract would be subject to standard and special lease stipulations developed for the PRB and the tract if is offered for sale (Appendix D of this EIS). Alternatives for the West Roundup LBA Tract assume that TCC would be the successful bidder on the tract if a lease sale is held and that the tract would be mined as a maintenance lease for the North Rochelle Mine. Other assumptions are the same as for the Proposed Action.

I-3.0 CONSULTATION TO DATE

The location of the existing North Rochelle Mine coal leases, the existing approved mine permit area, and the West Roundup LBA Tract are shown in Figure I-3.

The North Rochelle Mine and West Roundup LBA Tract are included in the area evaluated for acceptability for further lease consideration as part of the coal screening process. The coal screening process is a four part process that includes application of the coal unsuitability criteria, which are defined in 43 CFR 3461.5 and listed in Appendix B of this EIS. The coal unsuitability criteria were applied to federal coal lands in Campbell and Converse Counties in the early 1980s by the BLM and USDA-FS. The West Roundup LBA Tract is located in the area covered by the USDA-FS screening analysis published as Appendix F of the 1985 *Thunder Basin National Grassland Land and Resource Management Plan*. Consultation with the U.S. Fish and Wildlife Service (USFWS) occurred in conjunction with the unsuitability findings under Criterion 9 (Critical Habitat for Threatened or Endangered Plant and Animal Species), Criterion 11 (Bald or Golden Eagle Nests), Criterion 12 (Bald and Golden Eagle Roost and Concentration Areas), Criterion 13 (Falcon Nesting Site(s) and Buffer Zone(s)), and Criterion 14 (Habitat for Migratory Bird Species). In 1993, BLM, USDA-FS, and USFWS began the process of reapplying these criteria to federal coal lands in Campbell, Converse, and Sheridan Counties. The results of this analysis are included as Appendix D in

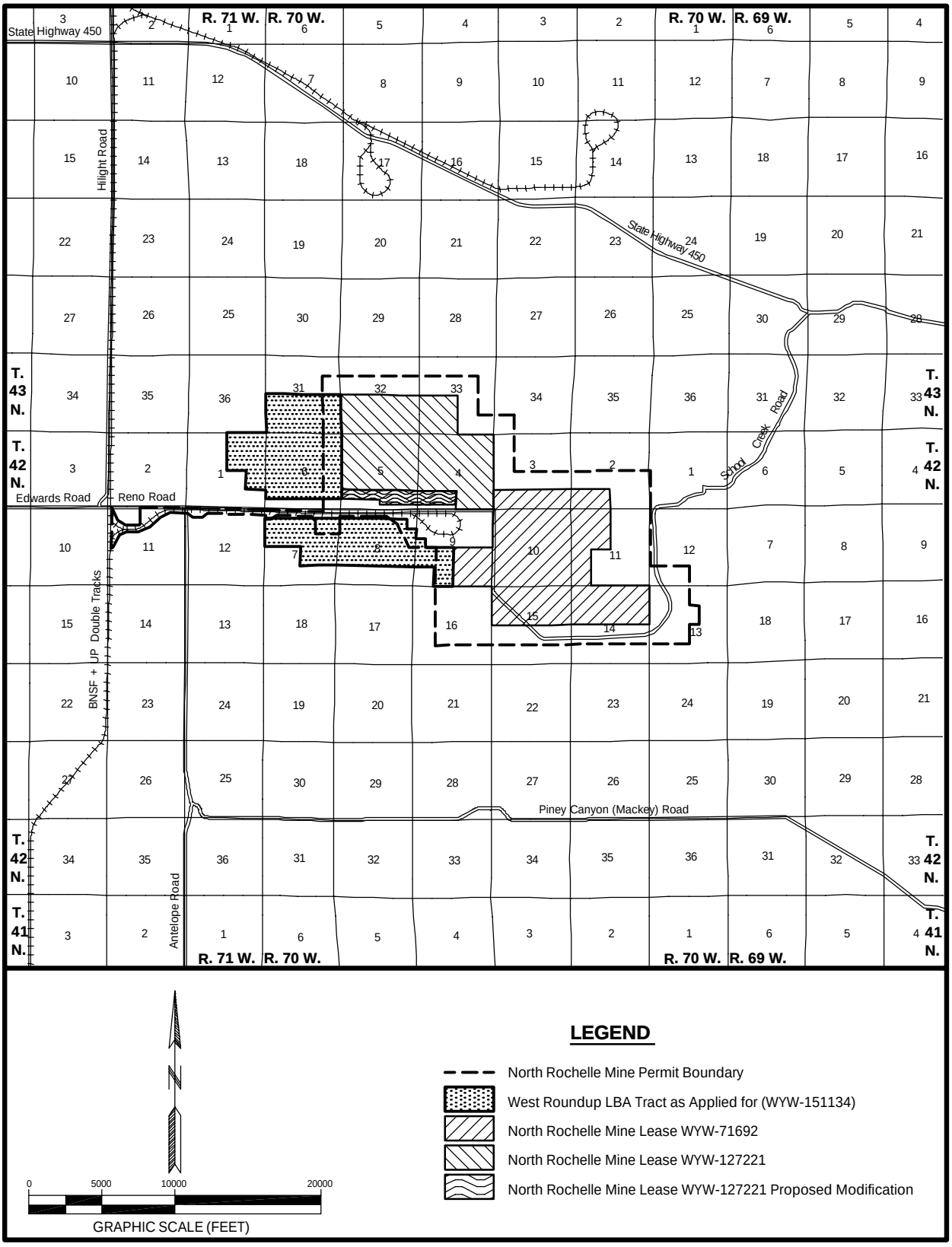

Figure I-3. North Rochelle Mine Federal Coal Leases and West Roundup LBA Tract as Applied for.

the 2001 *Approved Resource Management Plan for Public Lands Administered by the Bureau of Land Management Buffalo Field Office*. This analysis is referenced in the *Final Environmental Impact Statement (FEIS) for the Northern Great Plains Management Plans Revision* (USDA-FS 2001a) and adopted in the *Land and Resource Management Plan (LRMP) for the Thunder Basin National Grassland* (USDA-FS 2001b). The Record of Decision for the Thunder Basin National Grassland FEIS and LRMP was signed on July 31, 2002 (USDA-FS 2002). The West Roundup LBA Tract falls within Management Area 8.4, as identified in the 2002 Thunder Basin National Grassland LRMP, which is to be managed for mineral production and development. Consultation with USFWS was conducted as part of the 2002 LRMP.

Appendix B of this EIS summarizes the unsuitability criteria, describes the general findings for the previous screening analyses discussed above, and presents the findings for the West Roundup Tract based on the current information.

Consultation with USFWS has previously been conducted for the area included within the North Rochelle Mine's existing approved mining permit area (Figure I-3) part of the mining and reclamation plan approval process. A letter dated October 8, 2002, from Michael M. Long, USFWS, Cheyenne, Wyoming, to Stacy Page, Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD), Sheridan, Wyoming, states USFWS concurrence with TCC's plan to protect T&E species listed under the Federal ESA.

USFWS provided BLM a listing of the threatened, endangered, and proposed species that may be present in the project area in a letter dated June 7, 2002 (USFWS 2002a). The following list of species that was provided by USFWS represents the federally listed T&E species, species proposed for listing, and candidate species that may occur in the SPRB Coal EIS General Analysis Area.

Birds

Bald eagle (*Haliaetus leucocephalus*): Threatened (Proposed for Delisting)
Mountain plover (*Charadrius montanus*): Proposed Threatened

Mammals

Black-footed ferret (*Mustela nigripes*): Endangered
Black-tailed prairie dog (*Cynomys ludovicianus*): Candidate

Plants

Ute ladies'-tresses (*Spiranthes diluvialis*): Threatened

The Draft SPRB Coal EIS was distributed in January 2003. USFWS submitted comments on the Draft SPRB Coal EIS on April 11, 2003.

I-4.0 SPECIES HABITAT AND OCCURRENCE AND EFFECTS OF THE PROPOSED PROJECT

The North Rochelle Mine began producing coal in 1989. Wildlife monitoring has been conducted annually for the mine since 1984. Because the areas covered in the wildlife surveys include the mine permit area and a two-mile perimeter, much of the area in the West Roundup Tract has been included in these annual wildlife surveys conducted for the North Rochelle Mine. The wildlife monitoring is designed to meet the WDEQ/LQD and federal requirements for annual monitoring and reporting of wildlife activity on coal mining areas. Detailed procedures and site-specific requirements have been carried out as approved by Wyoming Game and Fish Department (WGFD) and USFWS. The monitoring program is conducted in accordance with Appendix B of WDEQ/LQD Coal Rules and Regulations.

Background information on T&E species in the vicinity of the West Roundup LBA Tract was drawn from several sources, including: the Final EIS for the North Rochelle Coal Lease Application (BLM 1997), the Final Environmental Assessment for the West Black Thunder Coal Lease Application (BLM 1992), the North Rochelle Mine's 2001 and 2002 annual wildlife monitoring reports submitted by TCC to the WDEQ/LQD, WGFD and USFWS records, and personal contacts with WGFD and USFWS biologists.

Site-specific data for the proposed lease area were obtained from sources including WDEQ/LQD permit applications and annual reports for the North Rochelle Mine and other nearby coal mines. Wildlife monitoring surveys have covered large perimeters around each mine's permit area. Consequently, the West Roundup LBA Tract has been covered during baseline and annual wildlife surveys for the North Rochelle and Black Thunder Mines. In 2001, North Rochelle Mine's wildlife monitoring program was expanded to include the North Roundup Amendment Area, which therefore encompassed the West Roundup LBA Tract and the surrounding areas (Figure I-4). TCC also conducted a baseline wildlife investigation for the West Roundup LBA study area, which includes the LBA tract as applied for, the area included under Alternatives 2 and 3, and appropriate perimeter (Figure I-4) in 2002 (Thunderbird Wildlife Consulting, Inc. [TWC] 2002). The objectives of this baseline survey were to collect both qualitative and quantitative data on vertebrate occurrence, abundance and habitat affinity on the study area. The baseline survey did not reveal any new information that is significantly different from what is included in the annual wildlife monitoring reports for the North Rochelle Mine.

The LBA tract and adjacent areas consist primarily of uplands. The topography is level to gently sloping except along the drainages, where channel incision has created some gullying. Sagebrush-grassland, dominated by big sagebrush, is the most common native habitat on the study area. Grassland habitat is slightly less prevalent and also distributed throughout the study area. Bottomland habitat dominated by streamside meadows is limited to

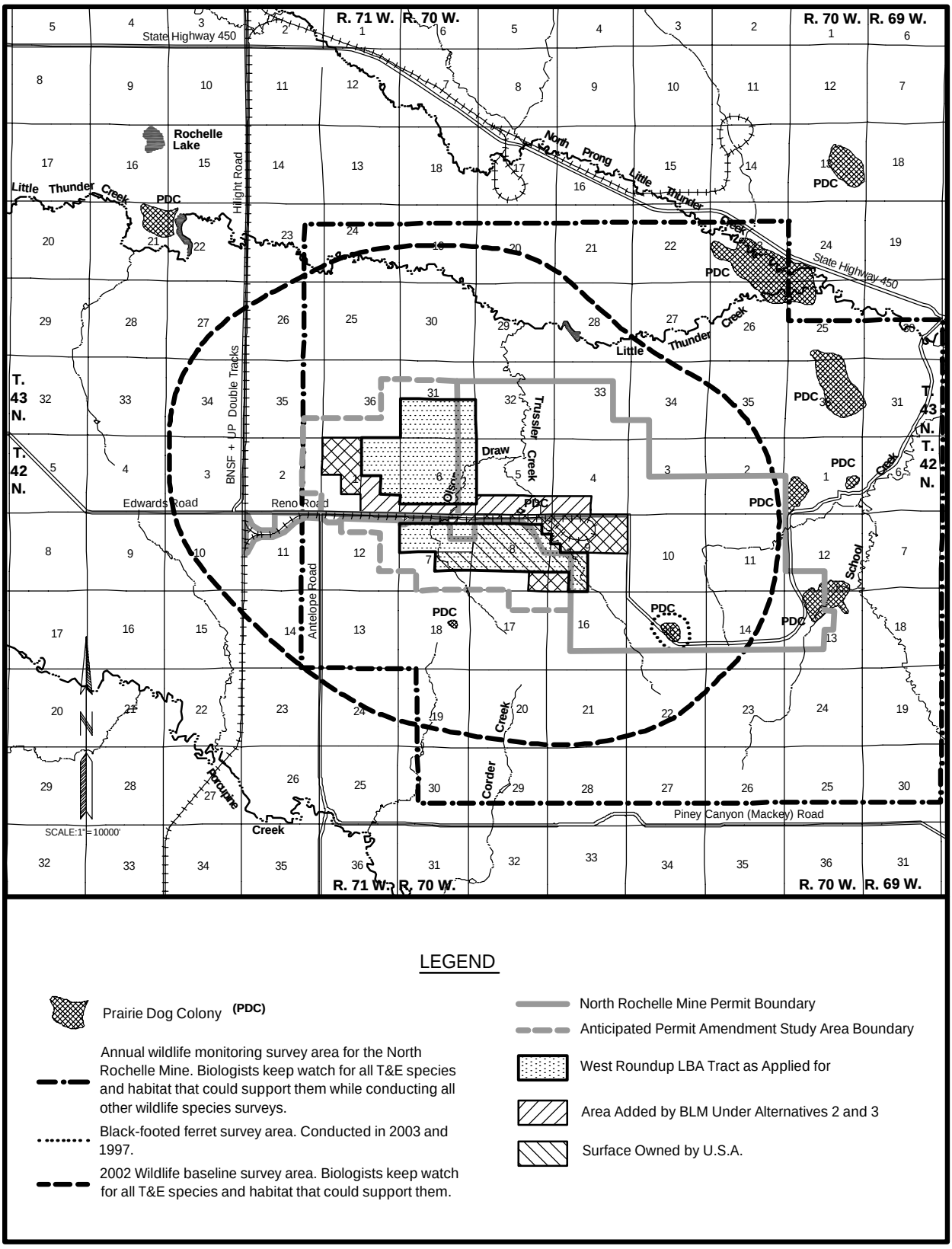

Figure I-4. T & E Animal Species Survey Areas for the North Rochelle Mine and West Roundup LBA Tract.

narrow corridors along Olson Draw and Trussler Creek, which run through the east-central portion of the study area. All streams in the survey area have historically been ephemeral, although water produced with coal bed methane (CBM) development may alter stream hydrology. Several ponds exist on the proposed lease and adjacent study area, most of them being playas dominated by western wheatgrass. Roughly 1.5 percent of the entire West Roundup LBA Tract as applied for, the areas added by Alternatives 2 and 3, and a disturbance buffer sufficient to mine and reclaim the tract is presently disturbed and essentially devoid of vegetation. No trees occur within this area.

Within the General Analysis Area there is no "Critical" habitat designated by USFWS for threatened or endangered species. The following discussion describes species' habitat requirements and their occurrence in the area of the West Roundup LBA Tract and evaluates the potential environmental effects of the Proposed Action and Action Alternatives on federally endangered, threatened, proposed, and candidate species.

The West Roundup LBA Tract includes surface lands that are part of the TBNG, administered by the USDA-FS. These lands are shown in Figure I-4. The remainder of the surface estate on the West Roundup LBA Tract is privately owned.

I-4.1 Threatened Species

I-4.1.1 Bald eagle (*Haliaetus leucocephalus*)

Biology and Habitat Requirements: On February 14, 1978, the bald eagle was listed as endangered in all of the coterminous United States except Minnesota, Wisconsin, Michigan, Oregon, and Washington, where it was classified as threatened (43 F.R. 6233). The USFWS reclassified the bald eagle from endangered to threatened throughout its range in the lower 48 states on July 12, 1995 (60 F.R. 36000). The bald eagle was proposed for delisting on July 6, 1999 (64 F.R. 36454). Currently, the proposal has not been finalized or withdrawn.

Bald eagles nest primarily in remote areas free of disturbance, containing large trees that are within one mile of water bodies containing reliable fisheries. In Wyoming, this species builds large nests in the crowns of large mature trees such as cottonwoods or pines. Typically, there are alternate nests within or in close proximity to the nest stand. Snags and open-canopied trees near the nest site and foraging areas provide favorable perch sites. Old-growth stands with their structural diversity and open canopies are an important habitat for bald eagles. This species is a common breeding resident in some areas of Wyoming. Bald eagles utilize mixed coniferous and mature cottonwood-riparian areas near large lakes or rivers as nesting habitat (Luce et al. 1999).

Food availability is probably the single most important determining factor for bald eagle distribution and abundance (Steenhof 1976). Fish and waterfowl are the primary sources of food. Big game and livestock carrion, as well as larger rodents (e.g., prairie dogs) also can be important dietary components where these resources are available (Ehrlich et al. 1988). Bald eagles are opportunistic foragers. They prefer to forage in areas with the least human disturbance (USFWS 1978, McGarigal et al. 1991).

Bald eagles that have open water or alternate food sources near their nesting territories may stay for the winter; other eagles migrate southward to areas with available prey. During migration and in winter, eagles often concentrate on locally abundant food resources and tend to roost communally. Communal roosts usually are located in stands of mature old growth conifers or cottonwoods. Large, live trees in sheltered areas provide a favorable thermal environment and help minimize the energy stress encountered by wintering eagles. Communal roosting also may facilitate food finding (Steenhof 1976) and pair bonding. Freedom from human disturbance is also important in communal roost site selection (Steenhof et al. 1980, U.S. Bureau of Reclamation 1981, USFWS 1986, Buehler et al. 1991). Continued human disturbance of a night roost may cause eagles to abandon an area (Hansen et al. 1981, Keister 1981). The proximity of night roosts to the other habitats required by wintering eagles, such as hunting perches and feeding sites, is important (Steenhof et al. 1980). Roosts may be several miles from feeding sites. The absence of a suitable roost may limit the use of otherwise suitable habitat.

Existing Environment: Bald eagles are relatively common winter residents and migrants in northeastern Wyoming's PRB. No suitable roosting habitat, known nest sites, or concentrated prey or carrion sources for bald eagles are present in the West Roundup study area. Historically, this species has infrequently been seen foraging in the general vicinity of North Rochelle Mine and the West Roundup LBA Tract. The 2001 North Rochelle Mine wildlife monitoring report to the WDEQ reported that no bald eagles were observed in the mine's wildlife survey area from July 2000 through June 2001. Bald eagles were observed in the North Rochelle Mine's wildlife survey for all Migratory Birds of High Federal Interest (MBHFI)/Migratory Bird Species of Management Concern (including the bald eagle) by TWC during four days in both spring and summer (May, June, and July) of 2002. Qualified biologists with TWC also watch for all listed species, including the bald eagle and habitats that could support them, while conducting all other wildlife species surveys. Bald eagles were observed in the vicinity of the North Rochelle Mine on six occasions during late winter and early spring of 2002 by mine employees and TWC biologists.

Effects of the Proposed Project: **Mining the federal coal included in the West Roundup LBA Tract, if the tract is leased under the Proposed Action or Action Alternative, may affect, but is not likely to adversely affect bald eagles.** Freedom from disturbance is important in forage, nest, and roost site

selection. Disturbance to nesting eagles can cause nest failure, nest abandonment, and unsuccessful fledging of young. If the federal coal in the West Roundup LBA Tract is leased, there would be an expansion in the area of human disturbance on the tract that could impact wintering bald eagles in the area. No suitable roosting habitat, known nest sites, or concentrated prey or carrion sources for bald eagles are present on the West Roundup LBA Tract or within the anticipated mine permit area for the West Roundup LBA Tract under the Proposed Action or Action Alternatives, including the Preferred Alternative. Bald eagle foraging habitat would be lost on the tract during mining and before final reclamation. The loss of any potential prey habitat would be short-term. Foraging habitat that is lost during mining would be replaced as reclamation continues on already mined out areas. Eagles may alter foraging patterns as they fly around areas of active mining activity. The potential for bald eagles to collide with or be electrocuted by electric power lines on the mine site would be minimal due to use of raptor-safe power lines, which is required under SMCRA (30 CFR 816.97). The applicant projects an increase in employees if the West Roundup LBA Tract is leased and mined, which would result in an increase in the volume and frequency of traffic on the roads accessing North Rochelle Mine and potentially an increase in vehicular collisions and roadside carcasses. This could result in an increase of bald eagle foraging along roads in this area, which would increase the potential for road kills of foraging bald eagles to occur.

Cumulative Effects: Mineral development, including CBM development, conventional oil and gas development, and surface coal mining, is a leading cause of habitat loss within the PRB. CBM development has occurred and is proposed in this area. Surface coal mining has been ongoing in the General Analysis Area for more than 20 years.

I-4.1.2 Ute ladies'-tresses (*Spiranthes diluvialis*)

Biology and Habitat Requirements: Ute ladies'-tresses, a member of the orchid family, was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, hydrological modifications of existing and potential habitat areas, and invasion of exotic plant species. At the time of listing, Ute ladies'-tresses was only known from Colorado, Utah, and extreme eastern Nevada. It was then discovered in Idaho in September 1996. It is currently known from western Nebraska, southeastern Wyoming, north-central Colorado, northeastern and southern Utah, east-central Idaho, southwestern Montana, and central Washington.

Ute ladies'-tresses is a perennial herb with erect, glandular-pubescent stems 12 to 50 centimeters tall arising from tuberous-thickened roots. This species flowers from late July to September. Plants probably do not flower every year and may remain dormant below ground during drought years. The total known population of this species is approximately 25,000 to 30,000 individuals. Occurrences range in size from one plant to a few hundred individuals.

Ute ladies'-tresses occurs primarily on moist, subirrigated or seasonally flooded soils in valley bottoms, gravel bars, old oxbows, or floodplains bordering springs, lakes, rivers, or perennial streams at elevations between 1,780 and 6,800 feet (ft) in elevation (Fertig and Beauvais 1999). Suitable soils vary from sandy or coarse cobbley alluvium to calcareous, histic or fine-textured clays and loams. Populations have been documented from alkaline sedge meadows, riverine floodplains, flooded alkaline meadows adjacent to ponderosa pine, Douglas-fir woodlands, sagebrush steppe, and streamside floodplains. Some occurrences are also found on agricultural lands managed for winter or early season grazing or hay production. Known sites often have low vegetative cover and may be subjected to periodic disturbances such as flooding or grazing. Populations are often dynamic and "move" within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999).

The orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as grazing, that are common to grassland riparian habitats (USFWS 1995). Ute ladies'-tresses colonize early successional riparian habitats such as point bars, sand bars, and low-lying gravelly, sandy, or cobbley edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. The orchid establishes in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms (USFWS 1995). The species occurs primarily in areas where the vegetation is relatively open and not overly dense, overgrown, or overgrazed. Ute ladies'-tresses orchid is commonly associated with horsetail, milkweed, verbena, blue-eyed grass, reedgrass, goldenrod, and arrowgrass.

This species is known from four occurrences in Wyoming, within Converse, Goshen, Laramie, and Niobrara Counties, all discovered between 1993-1997 (Fertig and Beauvais 1999). One of these occurrences is recorded from northwestern Converse County, within the Antelope Creek watershed.

Existing Environment: A Ute ladies'-tresses orchid survey was completed by Intermountain Resources (Jim Orpet) on the West Roundup LBA Tract in July and August of 2001 for sites not previously surveyed. The area surveyed included the lands contained within the LBA tract as applied for and the anticipated permit amendment study area.

In preparation for Ute ladies'-tresses surveys, Mr. Orpet visited the Rocky Mountain Herbarium in Laramie, Wyoming and reviewed herbaria specimens. The herbarium provided valuable information on sites this species was known to inhabit in Wyoming. Wyoming Wildlife Magazine published an article on this species in August 1995. Several color photographs from that article were used as field references and were carried with the investigators during field surveys.

Based on discussions with persons familiar with flowering dates of this species in Wyoming and the 2001 growing season conditions, initial field surveys were conducted on July 20. Additional site surveys were completed on August 14, 17, and 24. During the first site inventory, the entire study area was surveyed for potentially suitable habitats where the orchid may occur. These surveys were completed on foot, including walking the entire lengths of ephemeral drainages documenting locations of potential habitat and searching for this species. The additional surveys concentrated on thorough searches of the potential habitats identified during the first survey. Survey conditions were generally good except for some areas being heavily grazed by livestock.

A total of 28.85 acres of waters of the U.S. (8.65 acres of jurisdictional waters of the U.S. and 20.25 acres of non-jurisdictional waters of the U.S.) have been identified within the West Roundup tract as applied for, the Action Alternatives, and a buffer area around the tract sufficient to mine and reclaim the tract as a part of the existing North Rochelle mining operation. Potential habitats based on hydrological criteria are rare and recently created by coal bed methane (CBM) production discharge water. Several stock reservoirs on ephemeral drainages occur in the study area and all are constructed earthen berms or dams. These ponds generally contain water in early spring, then dry up in the summer, although one pond in the northern part of the study area currently contains water all year due to CBM production discharge water. The Ute ladies'-tresses survey around that pond was emphasized. The potential for the Ute ladies'-tresses orchid to occur within this study area would be rare since potential habitat created by CBM production discharge water has existed for less than one year.

No Ute ladies'-tresses orchids were found within the study area during these surveys or during surveys by other mines in this area.

Effects of the Proposed Project: **Mining the federal coal included in the West Roundup LBA Tract, if the tract is leased under the Proposed Action or Action Alternative, may affect, but is not likely to adversely affect Ute ladies'-tresses.** Typical suitable habitat for this species is rare in the study area and that which does occur in the study area has recently been created by CBM production discharge water. Surveys of the existing suitable habitat have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities.

Cumulative Effects: Alterations of stream morphology and hydrology are believed to have extirpated Ute ladies'-tresses from most of its historical range (USFWS 2002b). Disturbance and reclamation of streams by surface coal mining may alter stream morphology and hydrology. The large quantities of water produced with CBM development and discharged on the surface may

also alter stream morphology and hydrology. Jurisdictional wetlands located in the West Roundup LBA Tract that are destroyed by mining operations would be replaced in accordance with the requirements of Section 404 of the Clean Water Act, as determined U.S. Army Corps of Engineers (COE). The replaced wetlands may not duplicate the exact function and landscape features of the pre-mine wetlands. COE considers the type and function of each jurisdictional wetland that will be impacted and may require restoration of additional acres if the type and function of the restored wetlands will not completely replace the type and function of the original wetland.

I-4.2 Endangered Species

I-4.2.1 Black-footed ferret (*Mustela nigripes*)

Biology and Habitat Requirements: The black-footed ferret is a federally-listed endangered species. The black-footed ferret historically occurred throughout Texas, Oklahoma, New Mexico, Arizona, Utah, Kansas, North and South Dakota, Montana, Wyoming, Nebraska, and Colorado. The black-footed ferret, a nocturnally active mammal, is closely associated with prairie dogs, depending almost entirely upon the prairie dog for its survival. The decline in ferret populations has been attributed to the reduction in the extensive prairie dog colonies that historically existed in the western United States. Ferrets may occur within colonies of white-tailed or black-tailed prairie dogs. The USFWS has determined that, at a minimum, potential habitat for the black-footed ferret must include a single white-tailed prairie dog colony of greater than 200 acres, or a complex of smaller colonies within a 4.3 mile (7 kilometers) radius circle totaling 200 acres (USFWS 1989). Minimum colony size for black-tailed prairie dog is 80 acres (USFWS 1989). The last known wild population was discovered in Meeteetse, Wyoming. Individuals from this population were captured and raised in protective captive breeding facilities in an effort to prevent the species' extinction (Clark and Stromberg 1987).

Recent survey efforts in the Shirley Basin have identified a population at this former re-introduction site. This is the only known population in Wyoming.

Existing Environment: The West Roundup LBA Tract is within the historical range of the black-footed ferret, although no black-footed ferrets are presently known to occur in northeastern Wyoming. Surveys to identify any populations of this species within the area administered by the BLM Buffalo Field Office (Campbell, Johnson, and Sheridan Counties, Wyoming), including multiple years of wildlife surveys covering the North Rochelle Mine and surrounding area, have been unsuccessful. This endangered species is found almost exclusively living in prairie dog colonies. The Bureau of Sport Fisheries and Wildlife estimated that there were approximately 49,000 remaining acres of black-tailed prairie dog colonies in Wyoming in 1961. Strychnine and 1080 poisoning was banned in 1972, but colonies had declined to less than the estimated 1961 levels in the intervening time. Increases in occupied black-

tailed prairie dog habitat did occur following the ban of strychnine and 1080, but the black-tailed prairie dog population has been declining recently due to the impacts of sylvatic plague (USFWS 2000b). During the 1980s, the WGFD, in cooperation with other agencies, conducted searches for black-footed ferrets in Wyoming in the places they were most likely to be found, but these searches were not successful, according to Martin Grenier with the WGFD. The State of Wyoming is in the process of recommending to the USFWS that most of the state be cleared for black-footed ferrets, and that no further black-footed ferret surveys be required in the remaining black-tailed prairie dog ranges in Wyoming (Martin Grenier, personal communication, 10/14/2003).

Recent wildlife surveys conducted for the North Rochelle Mine indicate no prairie dog colonies are located within the West Roundup LBA Tract under the Proposed Action. One small (less than three acres in area) colony is located within the area added under Alternatives 2 and 3, in the SE¼ of Section 5, T.42N., R.70W (Figure I-4). This colony, which is located between an existing federal coal lease and the North Rochelle Mine railroad loop, has not been surveyed for ferrets. One other small colony is located just over one-half mile south of the LBA tract, in the NE¼ of Section 18, T.42N., R.70W. No evidence of ferrets have ever been recorded by qualified biologists during general or specific surveys in the West Roundup Mine area. TWC watched for all listed species, including the black-footed ferret and habitats that could support them, while conducting all other wildlife species surveys in the area in 2001 and 2002 and during previous surveys. The black-tailed prairie dog colony in Section 15, T.42N., R.70W. was surveyed by TWC for black-footed ferrets following USFWS guidelines during January-March of 1997 and during January-February of 2003 (TWC 2003). These surveys were approved by the USFWS in letters to TCC dated June 30, 1997 and April 18, 2003.

A ferret reintroduction area has been designated in an area of larger concentrations of prairie dog colonies, located east of the coal burnline, outside of the area of surface coal mining. Based on USDA-FS observations, the scoria, or clinker, which forms the Rochelle Hills in this area serves as at least a partial barrier to prairie dogs (Tim Byer, personal communication, 9/29/2003). This is evidenced by the fact that the prairie dog colonies east of the burnline have been drastically affected by sylvatic plague, which has not affected the prairie dog colonies west of the burnline.

Effects of the Proposed Project**: Mining the federal coal included in the West Roundup LBA Tract, if the tract is leased under the Proposed Action or Action Alternative, will not affect black-footed ferrets.** One small prairie dog town, occupying less than three acres, is located on the tract under the BLM's Preferred Alternative. Black-tailed prairie dog occupied habitat has declined significantly from historic estimates and the species seems to be scattered throughout its historic range in eastern Wyoming. Prior to 1972, use of strychnine and 1080 to poison black-tailed prairie dogs contributed to declines in their population in Wyoming. Recent declines are largely attributed

to sylvatic plague and are likely to continue (USFWS 2000b). An outbreak of plague in the TBNG east of the coal burnline, has drastically affected the prairie dog population in that area, but the prairie dog towns west of the burnline, in the area of surface coal mining, have not been yet been affected by plague. The reductions in black-tailed prairie dog populations due to poisoning prior to 1972 and due to recent plague outbreaks reduced the potential for black-footed ferret survival in northeastern Wyoming. Searches of the best remaining black-footed ferret habitat in Wyoming conducted in the 1980s were not successful in finding any ferrets. Baseline wildlife surveys and annual wildlife surveys have been conducted for 20 years by mines in this area. No black-footed ferrets or signs of black-footed ferrets have been observed during these surveys.

Cumulative Effects: Mineral development within black-tailed prairie dog colonies is a leading cause of ferret habitat loss in the PRB. Surface coal mining tends to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover may differ from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs in this area.

Potential ferret habitat is also affected by other impacts to prairie dog populations. Plague can infect and eliminate entire prairie dog colonies (see black-tailed prairie dog discussion below). Poisoning and recreational prairie dog shooting may locally reduce prairie dog populations, but seldom completely eliminate colonies.

I-4.3 Proposed Species

I-4.3.1 Mountain plover (*Charadrius montanus*)

Biology and Habitat Requirements: USFWS published a proposed rule to list the mountain plover as threatened in 1999 (USFWS 1999a). The USFWS published a 60-day extension to the comment period on April 19, 1999 (USFWS 1999b). In October 2001, the USFWS designated the mountain plover as a proposed threatened species (USFWS 2001). On December 5, 2002, USFWS published a notice of new information and reopening of the comment period on the proposed rule to list the mountain plover as threatened (USFWS 2002c). On September 9, 2003, USFWS published a withdrawal of the proposed rule to

list the mountain plover as threatened (USFWS 2003). The USFWS has advised BLM that they will no longer be reviewing project impacts to the mountain plover under the Endangered Species Act, however, they encourage provisions that would provide protection for this species, as it continues to be protected under the Migratory Bird Treaty Act.

The mountain plover is a migratory species of the shortgrass prairie and shrub-steppe eco-regions of the arid West. This species utilizes high, dry, shortgrass prairie with vegetation typically shorter than four inches tall. Within this habitat, areas of blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe dactyloides*) are most often utilized, as well as areas of mixed-grass associations dominated by needle-and-thread (*Stipa comata*) and blue grama (Dinsmore 1983).

Mountain plovers often use black-tailed prairie dog towns for breeding, nesting, and feeding. Not all prairie dog towns offer suitable habitat for mountain plover, mostly due to topographic incompatibility. There are habitats other than prairie dog towns that provide nesting, feeding, and breeding habitat for mountain plover.

The nest of the mountain plover consists of a small scrape on flat ground in open areas. Most nests are placed on slopes of less than five degrees in areas where vegetation is less than three inches tall in April. More than half of identified nests occurred within 12 inches of old cow manure piles and almost twenty percent were found against old manure piles in similar habitats in Colorado. Nests in similar habitats in Montana (Dinsmore 1983) and other areas (Ehrlich et al. 1988) were nearly always associated with the heavily grazed shortgrass vegetation of prairie dog colonies.

Mountain plovers arrive on their breeding grounds in late March with egg-laying beginning in late April. Breeding plovers show close site fidelity, often returning to the same territory in subsequent years. Clutches are hatched by late June and chicks fledge by late July. The fall migration begins in late August and most birds are gone from the breeding grounds by late September.

Existing Environment: The BLM Buffalo Field Office contracted two mountain plover nesting surveys in 2001 (Good et al. 2002, Keinath and Ehle 2001). Both contracted surveys conclude mountain plover habitat within the PRB may be sparse and fragmented (Good et al. 2002, Keinath and Ehle 2001). Much of the PRB is dominated by rolling sagebrush. Good et al. (2002) believe that bare ground and vegetation height are the limiting habitat components in the basin's prairie communities; the areas they detected mountain plovers within the Powder River Basin appeared to receive less precipitation and have greater amounts of short grass prairie than the rest of the basin. However, both surveys caution more suitable mountain plover habitat exists than they were able to survey, as they were limited to public roads (Good et al. 2002, Keinath and Ehle 2001).

Mountain plover preferred habitat consists of level, open and exceedingly grazed sites (Knopf 1996) that are generally lacking in the West Roundup LBA study area. Prairie dog towns can provide habitat for the mountain plover, although no colonies exist within the tract as applied for and one small colony (less than three acres) is located within the area added by BLM's Preferred Alternative. No sightings of mountain plover have been recorded in the vicinity of the LBA tract and anticipated permit amendment study area. No mountain plover were observed in the North Rochelle Mine's wildlife survey for all MBHFI/Migratory Bird Species of Management Concern, which includes the mountain plover, in 2001 or 2002 by TWC. No plovers were observed in the North Rochelle Mine wildlife survey area during the 2001 or 2002 annual wildlife monitoring surveys. Qualified biologists with TWC watch for all listed species and habitats that could support them while conducting all wildlife species surveys.

Effects of the Proposed Project: **Mining the federal coal included in the West Roundup LBA Tract, if the tract is leased under the Proposed Action or Action Alternative, is not likely to jeopardize the continued existence of mountain plovers.** Mountain plover have not been observed in the vicinity of the LBA tract during wildlife surveys conducted for the North Rochelle Mine that began in 1984, and the typical suitable habitat for this species is not currently located on the tract.

Cumulative Effects: Mineral development is likely to have both beneficial and detrimental effects on mountain plover. Mining activities tend to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Surface disturbance within suitable habitat will likely result in short term habitat loss in areas to be reclaimed, and permanent or long-term loss where roads and permanent or long-term facilities are located. Power poles, conveyors, and other structures are likely to provide perch sites and hiding cover for mountain plover predators. Vehicle traffic may occasionally run over mountain plovers or their nests. Mineral development may benefit plovers where surface disturbance provides bare ground and reduces shrub cover (Dechant et al. 2001).

Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area, however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs in this area, which

could lead to an increase or decrease in potential habitat for mountain plovers in this area.

I-4.4 Candidate Species

I-4.4.1 Black-tailed prairie dog (*Cynomys ludovicianus*)

Biology and Habitat Requirements: The black-tailed prairie dog was added to the list of candidate species for federal listing on February 4, 2000 (USFWS 2000a). At that time, the USFWS concluded that listing the black-tailed prairie dog was warranted but precluded by other higher priority actions to amend the lists of T&E species. No specific date for proposal for listing was given, but the USFWS committed to reviewing the status of the species one year after publication of the above-mentioned notice (i.e., on February 4, 2001) (USFWS 2000b). As of June 2002, the USFWS was listing the black-tailed prairie dog as a candidate (USFWS 2002a).

The black-tailed prairie dog is a highly social, diurnally active, burrowing mammal. Aggregations of individual burrows, known as colonies, form the basic unit of prairie dog populations. Found throughout the Great Plains in shortgrass and mixed-grass prairie areas (Fitzgerald et al. 1994), the black-tailed prairie dog has declined in population numbers and extent of colonies in recent years. The three major impacts that have influenced black-tailed prairie dog populations are the initial conversion of prairie grasslands to cropland in the eastern portion of its range from approximately the 1880s-1920s; large-scale control efforts conducted from approximately 1918 through 1972, when an Executive Order was issued banning the use of compound 1080; and the introduction of sylvatic plague into North American ecosystems in 1908 (USFWS, 2000b). In Wyoming, this species historically occurred east of the Rocky Mountain foothills and may have occupied millions of acres (USFWS 2000b). It is primarily currently found in isolated populations in the eastern half of the state (Clark and Stromberg 1987). USFWS recently estimated that about 125,000 acres of black-tailed prairie dog occupied habitat exists in Wyoming (USFWS 2000b). Many other wildlife species, such as the black-footed ferret, swift fox, mountain plover, ferruginous hawk, and burrowing owl are dependent on the black-tailed prairie dog for some portion of their life cycle (USFWS 2000b).

The species is considered a common resident, utilizing shortgrass and mid-grass habitats in eastern Wyoming (Luce et al. 1999).

Existing Environment: Recent wildlife surveys by TWC indicate that no prairie dog colonies exist within the West Roundup LBA Tract as applied for, although one small (less than three acres) colony is located within the area added under Alternatives 2 and 3, and one other small colony (5.6 acres) is located just over one-half mile south of the LBA tract (Figure I-4). No surveys specifically targeting this species were conducted in 2001 or 2002 by qualified biologists

with TWC, although habitats that could support federally listed species were observed and noted while conducting all other wildlife species surveys.

According to UDSA-FS observations, on the TBNG in the vicinity of the surface coal mines, the largest concentrations of prairie dog colonies are found east of the coal burnline, which is outside and east of the area of surface coal mining (Tim Byer, personal communication 9/11/2003). The large prairie dog complexes in this area east of the coal burnline have been drastically impacted by outbreaks of plague. The prairie dog colonies west of the burnline, including the area occupied by the West Roundup LBA Tract, are generally smaller and less densely concentrated. These colonies have not been affected by plague.

USDA-FS has not allowed poisoning of prairie dogs on TBNG lands since the prairie dog was proposed for listing as a threatened species. Poisoning of prairie dogs by private landowners in this area has not been affected by the USDA-FS poisoning restrictions.

Effects of the Proposed Project: **Mining the federal coal included in the West Roundup LBA Tract, if the tract is leased under the Proposed Action or Action Alternative, may directly and indirectly affect individuals and a colony of black-tailed prairie dogs, but is not likely to jeopardize their continued existence.** There are currently no prairie dog colonies on the tract as applied for, but one small black-tailed prairie dog colony (less than three acres in area) is currently located within the area added under Alternatives 2 and 3 (Preferred Alternative), in the SE¼ of Section 5, T.42N., R.70W. Individuals in this colony, which is located within the existing mine permit area for the North Rochelle Mine, could be adversely affected if that area is leased. Habitat where prairie dogs could establish towns would be lost during mining but would be replaced as reclamation occurs on already mined areas or through the possible translocation of prairie dogs.

I-5.0 SUMMARY OF DETERMINATIONS

Table I-2.1 summarizes the determinations for federally listed threatened, endangered, proposed, and candidate species in the area of the West Roundup LBA Tract that may result from implementing the Proposed Action or Action Alternatives.

Table I-2.1. Effects Evaluation of Federal Threatened, Endangered, Proposed, and Candidate Species in the Area of the West Roundup LBA Tract.

Status	Species Common Name	Potential Effects
Threatened:	Bald eagle	May affect[1]
	Ute ladies'-tresses	May affect[1]
Endangered:	Black-footed ferret	No effect[1]
Proposed:	Mountain plover	May affect[2]
Candidate:	Black-tailed prairie dog	Would affect[3]

[1] Not likely to adversely affect individuals or populations.
[2] Not likely to jeopardize continued existence of proposed individuals or populations.
[3] Not likely to jeopardize continued existence of candidate individuals or populations.

I-6.0 REGULATORY REQUIREMENTS AND MITIGATION

The issuance of a Federal coal lease grants the lessee the exclusive rights to mine the coal, subject to the terms and conditions of the lease. Lease ownership is necessary for mining federal coal, but lease ownership does not authorize mining operations. Surface coal mining operations are regulated in accordance with the requirements of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) and Wyoming State regulations. SMCRA gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations. Pursuant to Section 503 of SMCRA, the WDEQ developed, and in November 1980 the Secretary of the Interior approved, a permanent program authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on nonfederal lands within the State of Wyoming. In January 1987, pursuant to Section 523(c) of SMCRA, WDEQ entered into a cooperative agreement with the Secretary of the Interior authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on federal lands within the state. In order to get approval of this cooperative agreement, the state had to demonstrate that the state laws and regulations are no less stringent than, meet the minimum requirements of, and include all applicable provisions of SMCRA.

If the West Roundup LBA Tract is leased, it would be a maintenance lease for the existing North Rochelle Mine, which currently has both an approved Mineral Leasing Act of 1920 (MLA) mining plan and an approved State mining and reclamation permit. In the case of maintenance leases, the existing MLA mining plan and State mining and reclamation plan must be amended to include the newly leased areas before they can be mined. In order to amend the existing MLA mining plan and State mining and reclamation permit, the company would be required to submit a detailed permit application package to

WDEQ before starting surface coal mining operations on the newly acquired leases. WDEQ/LQD would review the permit application package to insure that the permit application complies with the permitting requirements and that the coal mining operation will meet the performance standards of the approved Wyoming program. If the permit application package does comply, WDEQ would issue the applicant an amended permit that would allow the permittee to extend coal mining operations onto the newly acquired leases.

Protection of fish, wildlife, and related environmental values is required under SMCRA regulations at 30 CFR 816.97, which state:

> "No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended."

In addition to requiring the operator to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values, the regulations at 30 CFR 816.97 disallow any surface mining activity which is likely to jeopardize the continued existence of endangered or threatened species and require that the operator use the best technology currently available to minimize electrocution hazards to raptors; locate and operate haul and access roads to avoid or minimize impacts on important fish and wildlife species; and design fences, conveyors, and other potential barriers to permit passage of large mammals. Section 7 consultation would be required prior to approval of the mining and reclamation plan modification. Additional mitigation measures to ensure compliance with the ESA and SMCRA are developed when a detailed mining plan, which identifies the actual location of the disturbance areas, how and when they would be disturbed, and how they would be reclaimed, is developed and reviewed for approval. At the leasing stage, a detailed mining and reclamation plan is not available for evaluation or development of appropriate mitigation measures.

The following is a partial list of measures that are required as part of the mining and reclamation permits:

- avoiding bald eagle disturbance;
- restoring bald eagle foraging areas disturbed by mining;
- restoring mountain plover habitat;
- using raptor safe power lines;
- surveying for Ute ladies'-tresses if habitat is present;
- surveying for mountain plover if habitat is present; and
- surveying for black-footed ferrets in prairie dog towns potentially affected by mining.

I-7.0 CUMULATIVE IMPACTS

Existing habitat-disturbing activities in the PRB include surface coal mining; conventional oil and gas and CBM development; uranium mining; sand, gravel, and scoria mining; ranching; agriculture; road, railroad, and power plant construction and operation; recreational activities; and rural and urban housing development. Mining and construction activities, agriculture, and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. The net area of energy disturbance in the Wyoming PRB has been increasing. In the short term, this means a reduction in the available habitat for threatened, endangered, proposed, and candidate plant and wildlife species. In the long term, habitat is being and will continue to be restored as reclamation proceeds.

Oil and gas exploration and production have been ongoing in the PRB for more than 100 years. Conventional (non CBM) oil and gas fields are, for the most part, concentrated in the central and southern parts of the structural basin. Development of the CBM resources from the coal beds is a more recent occurrence, with CBM production in the Wyoming PRB starting in the late 1980s. According to the Wyoming Oil and Gas Conservation Commission, there are approximately 15,040 oil and gas wells currently producing in the Wyoming PRB. Most (approximately 12,530) of those wells are CBM wells, the remainder (approximately 2,510) are conventional oil or gas wells (Wyoming Oil and Gas Conservation Commission 2003). Additional wells have been drilled in the basin but have been abandoned or are not yet producing. BLM recently completed an environmental impact statement analyzing projected CBM and conventional oil and gas development in the Wyoming PRB over the next 10 years. The *Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil and Gas Project* (BLM 2003) analyzed the potential impacts of constructing and operating about 39,400 new CBM wells and 3,200 new conventional wells and associated facilities, starting in 2002 and continuing for 10 years. The project area for this analysis encompassed approximately eight million acres, and included all or portions of Campbell, Converse, Sheridan, and Johnson Counties in northeastern Wyoming. Total projected short term and long term disturbance associated with the development under the Preferred Alternative was estimated at 211,643 acres and 102,658 acres respectively.

BLM estimates that the existing federal coal leases in the Wyoming PRB include approximately 103,615 acres. The currently pending federal coal LBA tracts (including the tracts being evaluated in the South Powder River Basin Coal EIS) include approximately 18,650 acres. The majority of the coal in the areas permitted for surface coal mining is federal, but some state and private leases are included within some of the existing mine permit areas. All of the

existing federal coal leases are concentrated near the outcrop of the Wyodak coal bed, which is located along the eastern edge of the CBM project area discussed above. These active coal operations along the Wyodak outcrop had disturbed approximately 56,900 acres as of 2001. Approximately 14,400 of those acres of disturbance are occupied by "permanent" mine facilities, such as roads, buildings, coal handling facilities, etc., which are not available for reclamation. Of the remaining 42,500 acres of disturbance available for reclamation, approximately 23,700 acres had been reclaimed. This information is compiled from BLM lease and WDEQ/LQD mining and reclamation permit databases.

There are an estimated 9,500 additional acres of disturbance occupied by facilities indirectly associated with surface coal mining (i.e., railroad main line and electrical transmission line).

In addition to the ongoing coal leasing and mining and oil and gas development, there are other projects that are in progress or have been proposed. These projects include the Wygen II coal-fired power plant proposed near the Wyodak Mine, the Two Elk coal-fired power plant proposed near the Black Thunder Mine, and the proposed DM&E railroad line. Other power plants have been proposed in this area, but have not progressed beyond very preliminary stages. Most of these proposed projects would be constructed within or adjacent to areas of current disturbance. The proposed DM&E railroad line would represent a new corridor of disturbance across the eastern PRB, if it is approved and constructed.

The total acreage directly affected by surface coal mining and oil and gas development would not be disturbed simultaneously. Some of the disturbed acreage would be reclaimed or be in the process of being reclaimed as new disturbances are initiated in other areas.

Cumulative effects would also occur to T&E plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. Control of noxious weeds is addressed in surface coal mining and reclamation plans. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on T&E plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the species in the approved reclamation seed mixtures are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats. In the short-term in particular, species composition, shrub cover,

and other environmental factors are likely to differ from pre-disturbance vegetation communities and habitats. Establishment of noxious weeds and alteration of vegetation in reclaimed areas has the potential to alter T&E plant and wildlife habitat composition and distribution.

Potential adverse effects to listed and proposed species that have occurred and would continue to occur as a result of existing and potential future activities in the PRB would include direct loss of habitat, indirect loss of habitat due to human and equipment disturbance, habitat fragmentation, displacement of bald eagle prey species and the resultant change in bald eagle foraging, and mortality caused by equipment activities, motor vehicle collisions, power line collisions, and power line electrocution. The existing mines have developed mitigation procedures, as required by SMCRA (at 30 CFR 816.97) and Wyoming State regulations, to protect T&E species. These procedural requirements would be extended to include mining operations on the LBA tracts, if they are leased as proposed and after required detailed plans to mine the coal and reclaim the mined-out areas are developed and approved.

I-8.0 CREDENTIALS OF SURVEY PERSONNEL

BKS Environmental, Inc. of Gillette, Wyoming

Brenda K. Schladweiler
Ms. Schladweiler is the Senior Plant Ecologist and Reclamation Specialist for BKS Environmental, Inc. Ms. Schladweiler obtained a Master of Science degree in Soil Science and is currently pursuing a Doctorate Degree in Soil Science from the University of Wyoming. Ms. Schladweiler has skills in baseline soils and vegetation assessments in Wyoming and other western states. She has conducted soil assessments for National Pollution Discharge Elimination System (NPDES) discharge and land disposal of CBM production water, compiled reclamation plans for various coal, uranium, and bentonite projects and has coordinated management and monitoring for various mining and oil and gas reclamation projects.

Paige Wolken
Ms. Wolken obtained a Master of Science degree in Plant and Soil Sciences from the University of Wyoming. Ms. Wolken has accumulated nine years of field experience in identifying and mapping of sensitive (T&E) species, the collection and analysis of vegetation data for reclamation monitoring, and has conducted wetland delineation for state and private project permitting.

Heidi Smith
Ms. Smith is pursuing a Master of Science degree in Agronomy and Plant Pathology from the University of Wyoming. Ms. Smith has performed baseline studies and monitoring of reclaimed areas on open pit coal mines in the PRB for BKS since 1999.

Intermountain Resources of Laramie, Wyoming

Jim Orpet
Mr. Orpet obtained a Master of Science degree in Range Management from the University of Wyoming and has accumulated 24 years of field experience in vegetation and plant surveys. This experience includes preparation of plant species lists for over 100 projects throughout Wyoming. Mr. Orpet was qualified in 1987 by the WDEQ/LQD to conduct T&E and other plant and animal surveys on Abandoned Mine Lands (AML) projects within the state. Qualification at that time was based on review and approval of Mr. Orpet's credentials by the WGFD and the USFWS. Mr. Orpet has also completed numerous wetland surveys that have been approved by the COE.

Russel Tait
Mr. Tait obtained a Bachelor of Science degree in Wildlife Management from the University of Wyoming and has accumulated 11 years of field experience in vegetation and plant surveys in Wyoming. Mr. Tait has assisted Mr. Orpet in conduction Ute ladies'-tresses orchid surveys for over six years on coal mines and other resource development projects in Wyoming.

Thunderbird Wildlife Consulting, Inc. of Gillette, Wyoming

Gwyn McKee
Ms. McKee obtained a Master of Science degree in Wildlife Ecology form the University of Missouri-Columbia. She has accumulated more than 16 years of professional experience, with the last nine in Wyoming. Ms. McKee has skills that include planning and conducting surveys for a variety of terrestrial and aquatic species, summarizing data, and preparing technical reports for private, state, and federal agencies. Ms. McKee is considered qualified by all state and federal agencies to conduct T&E and other wildlife surveys within the region. Those qualifications include surveys for mountain plovers and their habitat, and certification by the USFWS to conduct black-footed ferret surveys.

Kort M. Clayton
Mr. Clayton earned a Masters of Science degree in Biology from the University of Saskatchewan. He has been professionally involved with wildlife issues in the Northern Great Plains for over 10 years. Since 1998, Mr. Clayton has focused on wildlife inventories, clearances, impact analysis, mitigation, and applied research related to energy developments in the PRB of Wyoming and Montana. Those experiences include surveys for most vertebrate taxa in the region, sage-grouse research, raptor mitigation projects, and clearance surveys for several Federally listed species.

I-9.0 REFERENCES AND LITERATURE CITED

Bureau of Land Management (BLM), 1992, Final Environmental Assessment for the West Black Thunder Coal Lease Application, Casper Field Office, Casper, Wyoming.

_____, 1997, Final Environmental Impact Statement for the North Rochelle Coal Lease Application (WYW127221), Casper Field Office, Casper, Wyoming.

_____, 2003, Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil and Gas Project, Buffalo Field Office, Buffalo, Wyoming.

Buehler, D.A., T.J. Mersmann, J.D. Fraser, and J.K.D. Seegar, 1991, Non-breeding bald eagle communal and solitary roosting behavior and roost habitat on the northern Chesapeake Bay. Journal of Wildlife Management 55(2): 273-281.

Byer, Tim, 2003, USDA-FS Biologists, Douglas Ranger District, Douglas, Wyoming, personal communication September 11, 2003.

Clark, T.W., and M.R. Stromberg, 1987, Mammals in Wyoming. University of Kansas, Museum of Natural History.

Dechant, J.A., M.L. Sondreal, D.H. Johnson, L.D. Igl, D.M. Goldade, M.P. Nennman, and B.R. Euliss, 2001, Effects of management practices on grassland birds: Mountain Plover. U.S. Geological Survey, Northern Prairie Wildlife Research Center, Jamestown, North Dakota. 15 pp.

Dinsmore, J.J., 1983, Mountain plover (*Charadrius montanus*). Pages 185-196 in J.S. Armbruster, editor. Impact of Coal Surface Mining on 25 Migratory Bird Species of High Federal Interest. USFWS FWS/OBS-83/35. 348 pp.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye, 1988, The Birder's Handbook: A Field Guide to the Natural History of North American Birds. Simon and Schuster, New York.

Fertig, W., and G. Beauvais, 1999, Wyoming Plant and Animal Species of Special Concern. Unpublished report. Wyoming Natural Diversity Databas, Laramie, Wyoming.

Fitzgerald, J.P., C.A. Meaney, and D.M. Armstrong, 1994, Mammals of Colorado. Denver Museum of Natural History, Denver, Colorado.

Good, R.E., D.P. Young Jr., and J. Eddy, 2002, Distribution of Mountain Plovers in the Powder River Basin, Wyoming. Western EcoSystems Technology, Inc. Cheyenne, Wyoming. 10pp.

Grenier, Martin, Wyoming Game and Fish Department, personal communication with Nancy Doelger, BLM Casper Field Office, October 14, 2003.

Hansen, A.J., M.V. Stalmaster, and J.R. Newman, 1981, Habitat characteristics, function, and destruction of bald eagle communal roosts in western Washington. *In* R.L. Knight, G.T. Allen, M.V. Stalmaster, and C.W. Servheen, eds. Proceedings of the Washington bald eagle symposium. The Nature Conservancy, Seattle, Washington. 254 pp.

Keinath, D.A. and D. Ehle, 2001, Survey for Mountain Plover (Charadrius montanus) on Federal Lands in the Powder River Basin. Wyoming Natural Diversity Database, University of Wyoming. Laramie, Wyoming. 17pp.

Keister, G.P., 1981, Characteristics of winter roosts and populations of bald eagles in Klamath Basin. M.S. Thesis. Oregon State University, Corvallis. 82 pp.

Knopf, F.L., 1996, Mountain plover (*Charadrius montanus*). *In* The Birds of North America, No. 211 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Washington, D.C.

Luce, B., A. Cerovski, B. Oakleaf, J. Priday, and L. Van Fleet, 1999, Atlas of Birds, Mammals, Reptiles, and Amphibians in Wyoming. Wyoming Game and Fish Department, Wildlife Division, Cheyenne, Wyoming.

McGarigal, K., R.G. Anthony, and F.B. Isaacs, 1991, Interactions of humans and bald eagles on the Columbia River estuary. Wildlife Monograph 115: 1-47.

North Rochelle Mine, 1998, & 2002, Annual Report, Wildlife Monitoring Appendix. Powder River Eagle Studies/Thunderbird Wildlife Consulting, Inc.

Steenhof, K., 1976, The ecology of wintering bald eagles in southeastern South Dakota. M.S. Thesis. University of Missouri, Columbia. 148 pp.

Steenhof, K., S.S. Berlinger, and L.H. Fredrickson, 1980, Habitat use by wintering bald eagles in South Dakota. Journal of Wildlife Management 44(4): 798-805.

Thunderbird Wildlife Consulting, Inc. (TWC), 2002, West Roundup LBA Tract Wildlife. Prepared for TCC.

_____, 2003, North Rochelle Mine Black-Footed Ferret Survey Report, Appendix A of Section 21, 2003 North Rochelle Mine LQD Annual Report, April 2003.

U.S. Bureau of Reclamation, 1981, A survey of wintering bald eagles and their habitat in the Lower Missouri Region. Denver, Colorado. 96 pp.

U.S. Department of Agriculture-Forest Service, 2001a, Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision.

_____, 2001b, Land and Resource Management Plan for the Thunder Basin National Grassland.

_____, 2002, Final Environmental Impact Statement and Land and Resource Management Plan Revision Record of Decision for the Thunder Basin National Grassland, July 31, 2002.

U.S. Fish and Wildlife Service (USFWS), 1978, Management of wintering bald eagles. FWS/OBS-78/79. Washington, D.C. 59 pp.

_____, 1986, Recovery plan for the Pacific bald eagle. Portland, Oregon. 160 pp.

_____, 1989, Black Footed Ferret Survey Guidelines for Compliance with the Endangered Species Act. USDI Fish and Wildlife Service, Denver, Colorado and Albuquerque, New Mexico.

_____, 1995, Ute ladies'-tresses draft recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 46 pp.

_____, 1999a, Proposed Threatened status for the mountain plover. Federal Register 64(30): 7587-7601.

_____, 1999b, Extension of comment period and announcement of public hearings on proposal to list the mountain plover as a threatened species. Federal Register 64(74): 19108.

_____, 2000a, 12-month administrative finding for a petition to list the black-tailed prairie dog from the National Wildlife Federation dated July 30, 1998. Available on the Internet at website <http://www.r6.fws.gov/btprairiedog/>, accessed August 22, 2000.

_____, 2000b, 12-month finding for a petition to list the black-tailed prairie dog as threatened. Federal Register 65(24): 5476-5488.

_____, 2001, Annual notice of findings on recycled petitions. Federal Register 66(5): 1295-1300.

_____, 2002a, Memorandum from Mike Long, Field Supervisor, USFWS Wyoming Field Office, Cheyenne, Wyoming, to BLM Casper Field Office Manager, Casper, Wyoming, dated June 7, 2002.

_____, 2002b, Biological and Conference Opinion for the Powder River Basin Oil and Gas Project, Campbell, Converse, Johnson, and Sheridan Counties, Wyoming, Cheyenne, Wyoming. 51pp.

_____, 2002c, Endangered and threatened wildlife and plants; threatened status and special regulation for the mountain plover. Federal Register 67(234): 72396-72407.

_____, 2003, Endangered and threatened wildlife and plants; withdrawal of the proposed rule to list the mountain plover as threatened. Federal Register 68(174): 53083-53101.

Wyoming Oil and Gas Conservation Commission, 2003, Personal communication between Nancy Doelger, BLM Casper Field Office, and Rick Marvel and Dave Hutton, Wyoming Oil and Gas Conservation Commission, October 22, 2003.